IN THE UNITED STATES DISTRICT COURT
FOR THE WESTERN DISTRICT OF TEXAS
WACO DIVISION

LEXINGTON LUMINANCE LLC	§	
	§	
***Plaintiff*,**	§	
	§	
v.	§	**Civil Action No. 6:20-cv-546-ADA**
	§	
ELLIOTT ELECTRIC SUPPLY, INC.	§	**JURY DEMANDED**
	§	
***Defendant*.**	§	
	§	

LEXINGTON LUMINANCE LLC'S OPENING CLAIM CONSTRUCTION BRIEF

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I. INTRODUCTION

Plaintiff Lexington Luminance LLC ("Lexington" or "Plaintiff") submits this Opening Claim Construction Brief wherein it offers its proposed constructions, which are consistent with the intrinsic and extrinsic record, and disputes the proposals of Elliott Electric Supply, Inc. ("Elliott" or "Defendant"). U.S. Patent No. 6,936,851 ("the '851 Patent") appears in Ex. A.[1]

II. LEGAL STANDARDS

This Court is familiar with the pertinent claim construction principles. For convenience, Lexington cites to relevant authority in the body of its brief.

III. TECHNOLOGY BACKGROUND

U.S. Patent No. 6,936,851 (the "'851 Patent"), entitled "Semiconductor Light-Emitting Device and Method For Manufacturing The Same," is directed to a novel use of etched patterns on the "substrate" of a light-emitting diode, or "LED", to improve the operation of certain semiconductor devices. *See* Ex. A. LEDs are devices that convert electricity into light and are increasingly used for lighting applications. An LED generally consists of layers of different semiconductor material that are grown on a base material known as a substrate. Much recent LED fabrication has used a crystalline layer on top of a crystalline substrate. However, the combination of these materials has led to a lattice mismatch problem – that is, the two materials exhibit different lattice constants – an unequal distance between the unit cells that comprise a crystal lattice. This mismatch leads to dislocations in the material system in which the atoms in the grown crystalline semiconductor layers do not exactly line up with those in the substrate, causing cracks or dislocations to form in the layers. The introduction of increased defects limits the size of the wafers that may be reliably produced.

[1] The Certificate of Correction appears on p. A-15, and the Reexamination Certificate appears on pp. A-16 & A-17.

The inventor of the '851 Patent, Dr. Tien Wang[2], recognized that the direction of such defect propagation is generally perpendicular to the plane where the two materials meet. He determined that if the surface of the substrate were etched to form certain trench shapes, the number of defects that could propagate into the active layer and affect the operation of the LED was substantially reduced. Dr. Wang made use of an etching of the substrate surface that resulted in a textured district made up of smooth trenches. Because the trenches are smooth, the angle of orientation of the surface of the trench varies over the width of the trench so that there is no constant angle of orientation as there might be if the trenches followed a sharp saw-tooth pattern. Put another way, if one assumes that the surface of the trench was modeled by many very tiny facets, the angle of orientation of these microfacets would approximate a smooth surface. Dr. Wang found that by using the smooth trenches, some of the propagating defects would bend away before reaching the active layer. The overall dislocation density in the active layer is thus reduced and the performance of the light-emitting device is improved.

IV. BACKGROUND RELATING TO THE DISPUTED TERMS

Most of the claim construction issues before the Court involve this claim limitation:

> a textured district defined on the surface of said substrate comprising a plurality of etched trenches having a sloped etching profile with a smooth rotation of microfacets without a prescribed angle of inclination

The Federal Circuit has construed "trenches" as "areas in the surface of the substrate from which some amount of material is removed in order to create a pattern on the surface of the substrate." Ex. B, *Lexington Luminance LLC v. Amazon.com Inc.*, 601 F. App'x. 963, 970-971 (Fed. Cir. 2015). A "plurality" means "two or more." *See Dayco Prods. v. Total Containment*, 258 F.3d 1317, 1328 (2001). The Federal Circuit has also construed "having" in the context of

[2] Dr. Tien Y. Wang obtained his PhD. in Material Science and Engineering from the University of Utah in 1990 and since that time has worked in many capacities related to the design and development of LED technology.

this claim to require an open construction. Ex. B, *Lexington*, 601 F. App'x. at 971. Thus, the claim limitation requires that "two or more etched trenches" must (1) include (but not be limited to) a sloped etching profile with a smooth rotation of microfacets and (2) the sloped etching profile be without a prescribed angle of inclination. The following helps to visualize the "etched trenches" and the "sloped etching profiles" used in the embodiments of the invention:

Figures appearing in the patent:

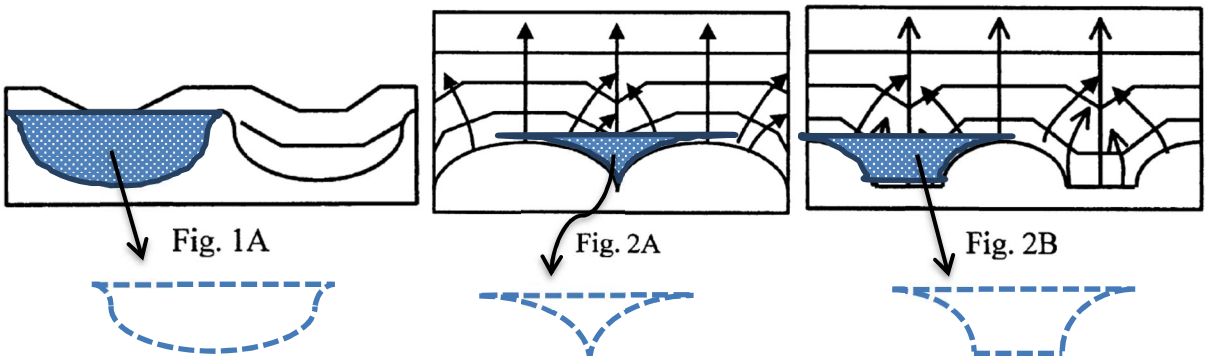
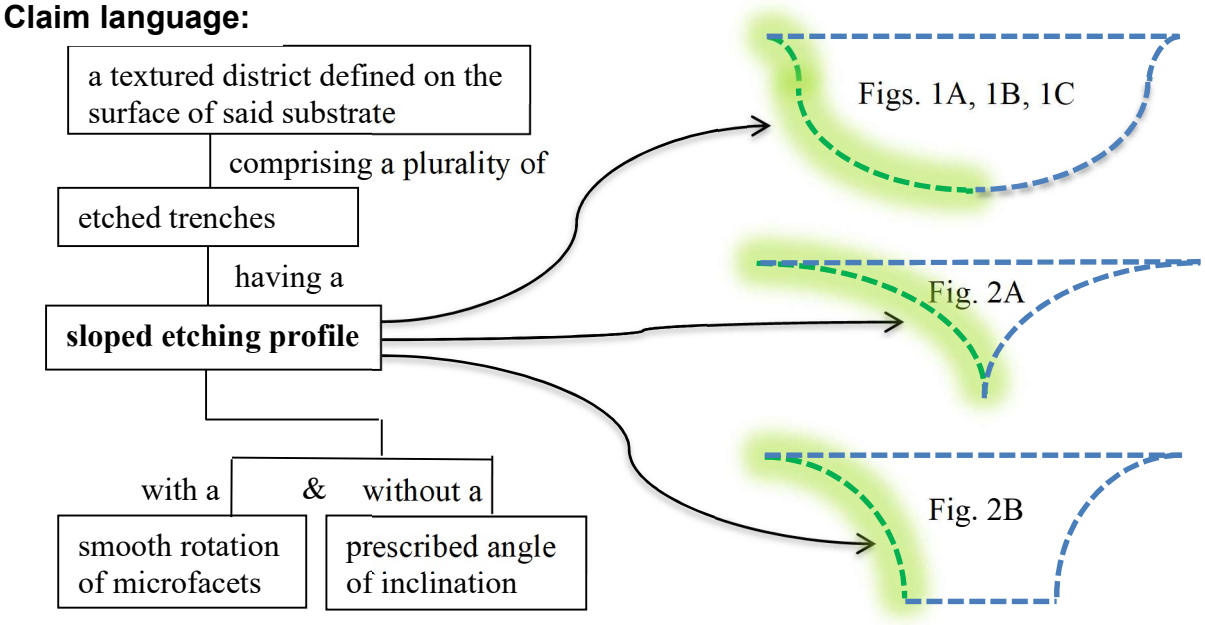


Fig. 1A, 1B, 1C Exemplary **Etched Trench**

Fig. 2A Exemplary **Etched Trench**

Fig. 2B Exemplary **Etched Trench**

Claim language:

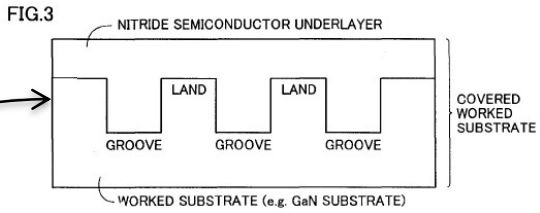


Thus, the claim limitation requires that the "sloped etching profile" has a "smooth rotation of microfacets" (and thus no corners) and the "sloped etching profile" be without a "prescribed angle of inclination" (and thus no straight segments).

In contrast, distinguishable trench-shapes from other inventions include the following:

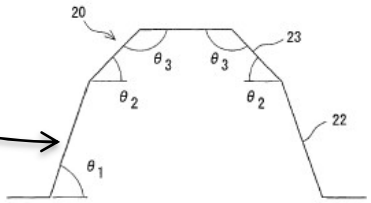
U.S. Patent No. 6,452,216 ("Tsuda") Fig. 3 (Ex. I):

No rotation of microfacets + Prescribed (constant) angle of inclination



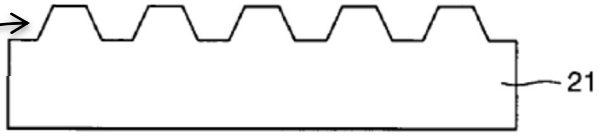
United States Patent No. 7,683,386 ("Tanaka") Fig 5A (Ex. J):

No rotation of microfacets + Prescribed (constant) angle of inclination



United States Patent No. 7,759,140 ("Lee") Fig 2C (Ex. K):

No rotation of microfacets + Prescribed (constant) angle of inclination



V. ARGUMENTS AND AUTHORITIES REGARDING DISPUTED CLAIM TERMS

A. "having"

Term	Lexington's Proposal	Defendant's Proposal
having [Claims 1, 2, 15-18]	including but not limited to	No construction necessary

1. "having" requires an open construction

The term "having" appears in asserted claims 1 and 15 in two contexts: (1) "a plurality of etched trenches *having* a sloped etching profile with a smooth rotation of microfacets without a prescribed angle of inclination" and (2) "said substrate *having* at least one of a group consisting of group III-V, group IV, group II-VI elements and alloys, ZnO, spinel and sapphire". Generally, the term "having" may be construed as open or closed, depending on the context of the patent. *See Pieczenik v. Dyax Corp.*, 76 F. App'x 293, 296 (Fed. Cir. 2003); *Crystal Semiconductor Corp. v. TriTech Microelectronics Int'l Inc.*, 246 F.3d 1336, 1348 (Fed. Cir.

2001). In the context of the present claims, the term must be construed as open. The term requires an open construction because the trenches shown in Figures 2B and 4B include a flat bottom in addition to a "sloped etching profile". This issue was previously addressed by the Federal Circuit, which reversed a district court for construing "having" as closed. *See* Ex. B, *Lexington,* 601 F. App'x. at 971.

B. "sloped [smooth] etching profile… with a smooth rotation of microfacets"
"sloped [smooth] etching profile"
"smooth"

Term	Lexington's Proposal	Defendant's Proposal
a sloped [smooth] etching profile with a smooth rotation of microfacets [Claims 1 and 2]	when viewed in outline from the side, the trenches have etched sloped [smooth] sides made up of a rotation of microfacets that approximate a smooth curve	No construction necessary beyond the terms "a sloped etching profile" and "microfacets"
sloped [smooth] etching profile [Claims 1, 2, 15-18]	when viewed in outline from the side, the trenches have etched sloped sides • Furthermore, "etching" is three-dimensional. • Furthermore, the entire portion of the etching profile that is sloped is to be curved • Should be construed as part of the term "a sloped [smooth] etching profile . . . without a prescribed angle of inclination"	the outline of the sloped surfaces of the etched trenches, when the etched trenches are viewed from the side
smooth [Claims 1, 15 & 16]	plain and ordinary meaning • This term should be construed as part of the phrases: • smooth rotation of microfacets [Claim 1], • sloped smooth etching profile [Claims 15-18], and • a sloped etching profile with a smooth rotation of microfacets [Claims 1 and 2]	Indefinite

1. The "sloped etching profile" is the same curved area as "sloped etched sides"

The primary difference between the parties' proposals is that Lexington's proposal makes it more clear to the jury that the "sloped etching profile" refers to the "sloped sides" of the etching

profile and it reduces the possibility that the jury include the inflection points and flat areas (which have no slope) in its consideration of the "sloped etching profile". The "sloped etching profile" and the "sloped etched sides" includes the curved portion of the etched trenches and excludes the portions of the etched trenches having zero slope, e.g., the very apex (top) and nadir (bottom) of the patterns.[3] The "sloped etching profile" means the "sloped etched sides" of the trench, and the restriction on the "sloped etching profile" is applied to the *sloped* portion of the etching profile (not any flat portions or non-inclined portions). Lexington's proposal is consistent with the fact that the sloped portion of the profile constitutes the sides of the profile, consistent with all disclosed embodiments of the invention.

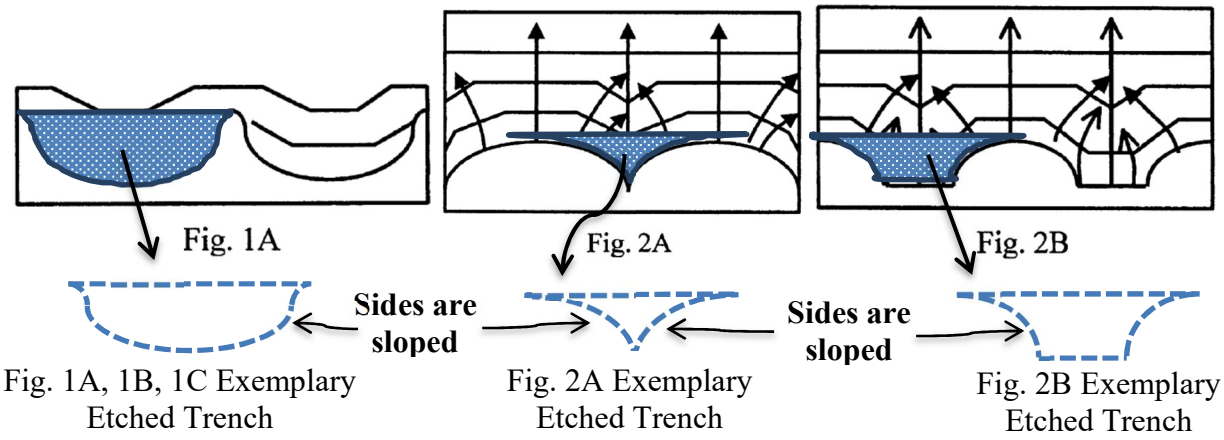


Fig. 1A, 1B, 1C Exemplary Etched Trench

Fig. 2A Exemplary Etched Trench

Fig. 2B Exemplary Etched Trench

There should be no dispute that sides of the "sloped etching profiles" are the portions that are sloped, consistent with all disclosed embodiments. In sum, the proposal properly incorporates the "sloped" and "etched" aspects of the claim language, while imparting a more understandable meaning to "a smooth rotation of microfacets."

2. Lexington's proposal assists with the jury's understanding of the extent of the "sloped etching profile" and reduces the possibility that the jury could apply the claim criteria to inappropriate portions of the etching profile

The breakdown of the term in the context of claim 1 is as follows:

a textured district defined on the surface of said substrate comprising a plurality of etched trenches having a sloped etching profile with a smooth rotation of microfacets without a prescribed angle of inclination

[3] The term "sloped" requires "to be at or have an angle that deviates from horizontal". *See* Ex. F at F-3.

All of the "etched trenches" include "sloped etching profiles" that are free from sharp corners in the cited embodiments. In other words, the original claim language properly includes the embodiments disclosed in the figures of the invention. The claim phrase in question modifies "a plurality of etched trenches." This means at least two etched trenches. The cross-section of the trench regions of the embodiments of Figs. 2A and 2B are shown below.

Fig. 2A of the patent:

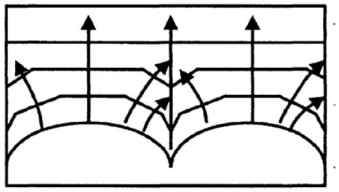


Fig. 2A

An "etched trench" according to the Fig. 2A embodiment is highlighted below:

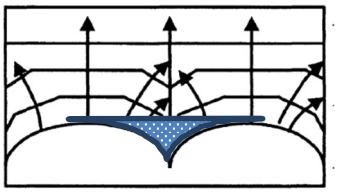
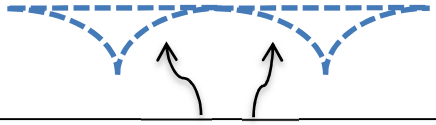


Fig. 2A

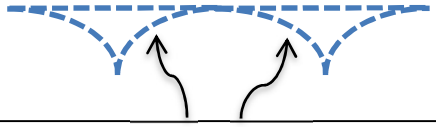
This "plurality of etched trenches" has "a sloped etching profile with a smooth rotation of microfacets" as required by the claim language

Outline of two (plurality) Fig. 2A trenches:



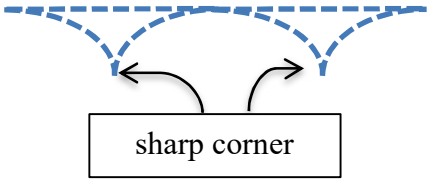
sloped etching profiles …
with a smooth rotation of microfacets

Lexington's Proposal: this "plurality of etched trenches" has "when viewed in outline from the side, the trenches have etched sloped sides made up of a rotation of microfacets that approximate a smooth curve"



etched sloped sides …
made up of a rotation of microfacets that approximate a smooth curve

Lexington's proposal reduces the possibility that the jury could consider the inflection points (which have no slope) as part of the "sloped etching profile"



sharp corner

This is Fig. 2B of the patent:

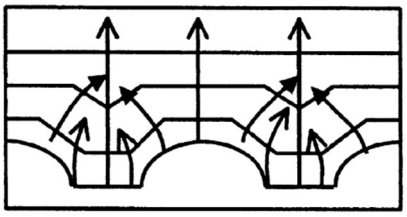


Fig. 2B

A plurality of "etched trenches" according to the Fig. 2B embodiment are highlighted below:

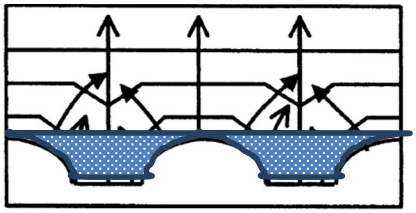
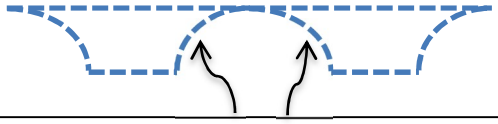


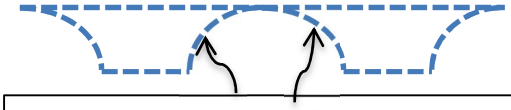
Fig. 2B

This "plurality of etched trenches" has "a sloped etching profile . . . without a prescribed angle of inclination" as required by the claim language



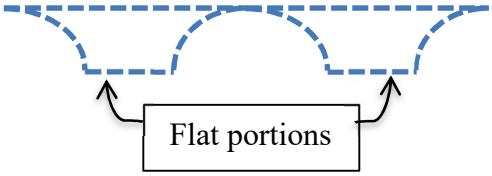
sloped etching profiles …
without a prescribed angle of inclination

Lexington's Proposal: this "plurality of etched trenches" has "when viewed in outline from the side, the trenches have etched sloped sides without a constant angle of inclination"



etched sloped sides …
without a constant angle of inclination
(i.e., curved along the entire sloped etching profile)

Lexington's proposal reduces the possibility that the jury could consider the flat portions of the etching profile (which have no slope) as part of the "sloped etching profile"



3. "smooth" is not indefinite

The term "smooth" appears in claims 1 as "a sloped etching profile with a *smooth* rotation of microfacets", claim 15 as "a sloped *smooth* etching profile with a *smooth* rotation of microfacets", and in claim 16 as "wherein the sides of said etched trenches are *smooth*". The term "smooth" is not technical, and is readily understandable to a jury. For example, the term "smooth" was considered by the Federal Circuit, and was found to be definite. *See Bausch & Lomb, Inc. v. Barnes-Hind/Hydrocurve, Inc*., 796 F.2d 443, 450 (Fed.Cir.1986) (defining "smooth" functionally, i.e., "that smooth means smooth enough to serve the inventor's purpose.")

The standard for indefiniteness is whether "a patent's claims, viewed in light of the specification and prosecution history, inform those skilled in the art about the scope of the invention with reasonable certainty." *Nautilus, Inc. v. Biosig Instruments, Inc*., 134 S. Ct. 2120, 2129 (2014). Here, the term "smooth" has a plain and ordinary meaning that would be evident to a person skilled in the relevant art. *See, e.g*., Exs. L & M. However, the Court need not define the term "smooth" to the jury. Non-technical terms may not require construal by the Court. Terms need not be construed or modified where the terms have plain, ordinary meanings that would not be confusing to a jury. The purpose of claim construction is "to clarify and when necessary to explain what the patentee covered by the claims." *U.S. Surgical Corp. v. Ethicon, Inc*., 103 F.3d 1554, 1568 (Fed. Cir. 1997).

4. The appropriate construction

The phrase "sloped etching profile … with a smooth rotation of microfacets" should be construed as "when viewed in outline from the side, the trenches have etched sloped sides made up of a rotation of microfacets that approximate a smooth curve". This properly explains that, as explained above, the limitation applies to the etched sloped sides of the trenches. It also explains that the etched sloped sides of the trenches are made up of a rotation of microfacets that approximates a smooth curve. As found by the *Google* court, this construction is consistent with the reexamination file history. Ex. C at C-8, *Lexington Luminance LLC v. Google, Inc*., No. 12-12218-RGS (D. Mass. Mar. 29, 2016) at 8 citing Decl. of David P. Bour, Ph.D. in Support of Patent Owner's Response to Office Action, May 13, 2014 (Ex. H) ("that the sloped surface of the trench is made up of many very tiny facets, a smooth rotation of these microfacets approximates a smooth, curved surface.")[4]

The term "smooth" has its plain and ordinary meaning and is not otherwise indefinite.

C. "a sloped etching profile… without a prescribed angle of inclination" "without a prescribed angle of inclination"

[4] The *Google* court construed "a sloped etching profile with a smooth rotation of microfacets" to mean "when viewed in outline from the side, the trenches have etched sloped sides made up of a rotation of microfacets that approximate a smooth curve." Ex. C at C-9, *Google*, at 9.

Term	Lexington's Proposal	Defendant's Proposal
a sloped [smooth] etching profile ... without a prescribed angle of inclination [Claims 1 & 15]	when viewed in outline from the side, the trenches have etched sloped [smooth] sides without a constant angle of inclination Furthermore, the term "without a prescribed angle of inclination" modifies the entire sloped sides of the etching profile, and not only its constituent segments.	For "sloped etching profile": "the outline of the sloped surfaces of the etched trenches, when the etched trenches are viewed from the side" For "without a prescribed angle of inclination": "curved along the full length, without any straight portions"
without a prescribed angle of inclination [Claims 1 & 15]	curved along the entire sloped sides of the etching profile • Alternatively: without a constant angle of inclination. • Furthermore, the term "without a prescribed angle of inclination" modifies the entire sloped sides of the etching profile, and not only its constituent segments. • This phrase should be construed as part of the term "a sloped [smooth] etching profile . . . without a prescribed angle of inclination"	curved along the full length, without any straight portions

The parties appear to agree that the phrase "without a prescribed angle of inclination" requires a curved shape, i.e., the absence of a constant angle of inclination. The dispute focuses on whether the jury should be instructed that the curve applies to "the entire sloped sides of the etching profile" (plaintiff's position) or "along the full length" (defendant's position). Defendant's proposal that includes the phrase "the full length" may introduce confusion, i.e., the full length of what? Because some of the disclosed embodiments of the invention include "etched trenches" that have flat portions between the curved portions, the Court's construction should make clear that the flat portions do not need to satisfy the "without a prescribed angle of inclination" element. Plaintiff's construction does this by referring to the sloped sides of the etching profile. Defendant's construction does not make it clear that the flat portions are excluded, but instead uses the term "full length", which suggests that the flat portions between the curved portions is included. Defendant's construction also uses the definite article "the" preceding "full length" suggesting that there is a *single* full length. It thus improperly introduces ambiguity into the infringement determination.

This is Fig. 2B of the patent:

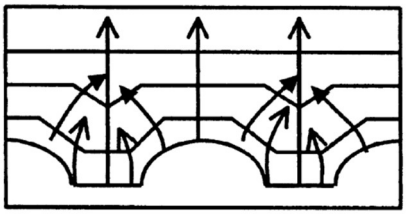


Fig. 2B

A plurality of "etched trenches" according to the Fig. 2B embodiment are highlighted below:

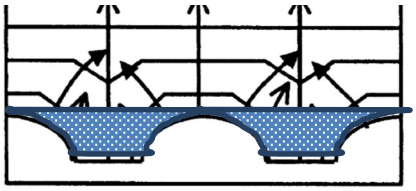
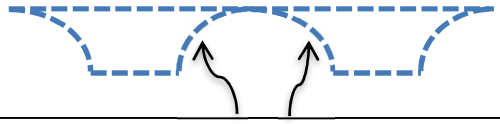


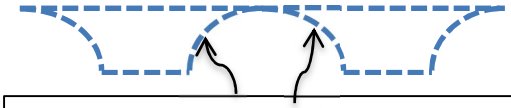
Fig. 2B

This "plurality of etched trenches" has "a sloped etching profile . . . without a prescribed angle of inclination" as required by the claim language



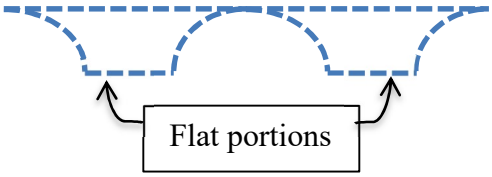
sloped etching profiles …
without a prescribed angle of inclination

Lexington's Proposal: this "plurality of etched trenches" has "when viewed in outline from the side, the trenches have etched sloped sides without a constant angle of inclination"



etched sloped sides …
without a constant angle of inclination
(i.e., curved along the entire sloped etching profile)

Lexington's proposal reduces the possibility that the jury could consider the flat portions of the etching profile (which have no slope) as part of the "sloped etching profile"



1. The "sloped etching profile" is the same curved area as "sloped etched sides"

The very area that constitutes the "sloped etching profile" also constitutes the "sloped etched sides." The "sloped etching profile" and the "sloped etched sides" includes the curved portion of the etched trenches and excludes the portions of the etched trenches having zero slope, e.g., the very apex (top) and nadir (bottom) of the patterns.

2. The appropriate constructions

In the context of the patent, "prescribed" means "constant." Lexington's proposal is consistent with the fact that the sloped portion of the profile constitutes the sides of the profile, consistent with all disclosed embodiments of the invention. Further, the requirement "without a

constant angle of inclination" means that the inclined sides of the etching profile must be *curved*, consistent with the written description and figures of the patent.

D. "layer"

Term	Lexington's Proposal	Defendant's Proposal
layer [Claims 1 & 15]	a thickness of material, which may be made up of sublayers, but does not refer to a substrate	No construction necessary

1. A "layer" may be made up of sublayers

The patent's specification states that the *composition* of layers *may change* as deposition proceeds due to a number of factors. *See, e.g.*, Ex. A, '851 patent col. 2:44-48; 6:19-21; 7:13-18. Therefore, the portions of the layer having different compositions could be considered "sublayers" which, as explained in the patent, may change as deposition proceeds. *Id*. col. 4:50-52 ("the inclined layers 12 emerging from the adjacent slopes meet and combine in the trench region"); *accord* Figs. 1A & 1B:

Fig. 1A

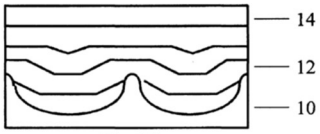


Fig. 1B

Further, claim 2 explains that the "first layer has an upper planar portion". The "upper planar portion" is "14" in Fig. 1B above. Ex. A, '851 patent col. 4:52-53. Accordingly, the first layer includes both "inclined layers" (labelled as "12" in Fig. 1B) and an "upper planar portion" (labelled as "14" in Fig. 1B). The layer can therefore be made up of sublayers. Furthermore, an active layer is made up of sublayers. Ex. G at G-13 ("so as to guide the extended lattice defects (11) away from propagating into the active layer (the layer (5, 6 and 7) in the light-emitting device that emits the light).")

Persuasive authority favors Lexington. For example, the court in *Lexington Luminance v. Feit Electric Company, Inc*. found:

> As to the parties' third dispute, the Court agrees with Plaintiff that the '851 Patent does not exclude the possibility of a layer being made up of "sublayers." The claims already refer to, for example, the "first layer" as having "inclined lower portions." *See, e.g.*, '851 Patent, Claim 1. Claim 2 further states, "wherein said first layer has an upper planar portion." *Id.* at Claim 2. In comparison, the '851 Patent specification describes Figure 1B as showing "inclined layers **12**" and an "upper section **14** of the structure [that] becomes planar." '851 Patent, 4:47–54.

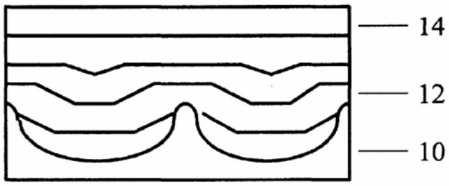


Fig. 1B

> *Id.* at Fig. 1B. The claims' references to "portions" of the "first layer," including an "upper planar portion," and the comparison to Figure 1B's disclosure, including of an "upper section," supports Plaintiff's position. That the claims and specification of the '851 Patent do not use the word "sublayer" does not warrant a different outcome on the current record. There is no basis presented to support limiting the meaning of the term "layer" in the context of the patent to exclude layers made up of sublayers.
>
> The term "layer" is construed consistent with Plaintiff's proposal as "a thickness of material, which may be made up of sublayers, but does not refer to a substrate."

Ex. E, *Lexington Luminance LLC v. Feit Electric Company, Inc*., No. 2:18-cv-10513-PSG-KS (June 24, 2020), pp. 9-10.

2. "layer" does not refer to a substrate

Claim 1 recites two layers, a "first layer" and an "active layer", and the "first layer" is disposed on a substrate: (1) "a first layer disposed on said textured district [on the surface of the substrate]", and (2) "a light-emitting structure containing an active layer disposed on said first layer". Thus, in the context of the claims, a "substrate" would not be "disposed on a substrate", and therefore a "layer" cannot refer to a substrate.

3. The appropriate construction

The Court should construe "layer" as "a thickness of material, which may be made up of sublayers, but does not refer to a substrate", which is the agreed construction adopted by *Lexington Luminance LLC v. Amazon.com, Inc.*, No. 12-122216-DJC (D. Mass. April 4, 2016) claim construction order (hereinafter "*Amazon*"), Ex. D. at D-10.

E. "[comprising a plurality of] inclined lower portions" "having at least one of a group consisting of group . . . sapphire"

Term	Lexington's Proposal	Defendant's Proposal

Term	Lexington's Proposal	Defendant's Proposal
[comprising a plurality of] inclined lower portions [Claims 1 & 15]	[including two or more] lower portions that are inclined relative to the overall plane of the substrate	No construction necessary
having at least one of a group consisting of group III-V, group IV, group II-VI elements and alloys, ZnO, spinel and sapphire [Claims 1 & 15]	said substrate including, but not limited to, at least one of the following: group III-V, group IV, group II-VI elements and alloys, ZnO, spinel, and sapphire	No construction necessary beyond the terms "group III-V . . . elements and alloys," "group IV . . . elements and alloys," and "group II-VI . . . elements and alloys"

1. The "comprising a plurality of inclined lower portions" phrase

The claim phrase at issue recites: "a first layer disposed on said textured district, comprising a plurality of inclined lower portions". The claims make clear that it is the "textured district" that includes "a plurality of inclined lower portions". The claims also make clear that the "textured district [is] defined on the surface of said substrate". Accordingly, the "lower portions" of the first layer are "inclined" relative to the overall plane of the substrate.

In addition, a "plurality" means "two or more." *See Dayco Prods.,* 258 F.3d at 1328. Lexington's proposal provides the meaning of "plurality" to the jury. Accordingly, "[comprising a plurality of] inclined lower portions" should be construed as "[including two or more] lower portions that are inclined relative to the overall plane of the substrate".

2. The "having at least one of a group" phrase

The phrase "having at least one of a group consisting of" means that at least one of one of the enumerated groups must be included, but that there can also be other groups that are not members of the enumerated list. *See Amgen Inc. v. Amneal Pharms. LLC*, 945 F.3d 1368, 1378 (Fed. Cir. 2000) ("There is no language in Amgen's claim indicating that every binder or disintegrant in the claimed formulation must be within the Markush groups. Instead, the claim recites 'at least one' binder or disintegrant 'selected from the group consisting of' various excipients.") Accordingly, the phrase should be construed as "said substrate including, but not limited to, at least one of the following [groups]". This is also consistent with the "open" meaning of "having" discussed in § I.A above.

F. "whereby said plurality of inclined lower portions are configured to guide extended lattice defects away from propagating into the active layer"

Term	Lexington's Proposal	Defendant's Proposal
whereby said plurality of inclined lower portions are configured to guide extended lattice defects away from propagating into the active layer[5] [Post-Reexamination Claim 1]	such that the inclined lower portions are configured to reduce the propagation of extended lattice defects into the active layer	No construction necessary

1. The "whereby" clause should be construed as a claim limitation

The Federal Circuit confirmed that the purpose of the invention is to *reduce* the propagation of extended lattice defects into the active layer:

> The court, however, reasoned that "it is clear that the goal of the invention is to 'reduce' the number of lattice defects" and held that the claim was not indefinite for not specifying "exactly how many defects [were] reduced." The court then construed the term to mean "such that free propagation of extended lattice defects into the active layer is significantly reduced relative to a device made by the same process without the textured districts."

Ex. B, *Lexington*, 601 F. App'x at 966-967 (internal citations omitted). The Federal Circuit then went on to find no error in this portion of the district court's construction:

> As the district court correctly noted, the specification explains that "the goal of the invention is to 'reduce' the number of lattice defects." The contested claim language specifies the intended function or purpose of the claimed structure. It thus applies wherever the function or purpose requires.

Ex. B, *Lexington*, 601 F. App'x at 969 (noting "agree[ment] with the district court that the claim is not indefinite for not specifying 'exactly how many defects [were] reduced'").

Moreover, the plain language of the claim suggests that "inclined lower portions" "guide extended lattice defects" "away from propagating into the active layer." The plain language of the claim does not require that the inclined lower portions are configured to have an effect on *all* extended lattice defects.

Other aspects of the patent reveal that all extended lattice defects emanating from the inclined lower portions of the first layer are not eliminated. The patent discusses the use of a mask district in

[5] This is the text appearing in the claim after reexamination. The pre-reexamination claim recited "so as to guide extended lattice defects away from propagating into the active layer".

order to *further* reduce the propagation of extended lattice defects into the active layer. *See, e.g.*, Ex. A, '851 patent, Fig. 4B; col. 2:35-41; Abstract ("By incorporating a blocking mask in the structure, the free propagation of extended defects into the active layer is further restricted."). A skilled artisan would understand that if the mask region of Fig. 4B provided an *additional* reduction in the propagation of extended lattice defects into the active layer, then, according to the '851 patent, the "lower inclined portions" of the first layer could not possibly be eliminating the propagation of *all* extended lattice defects into the active layer.

During the re-examination process, Lexington explained that "Claim 1 was [] amended to more particularly point out that the plurality of inclined lower portions of layer 1 guide extended lattice defects away from propagating into the active layer." *See* Ex. H at H-7, May 14, 2014 Response to Office Action. The *Google* court construed the limitations as follows:

> The court will construe both the "whereby" and the "so as to" phrases as meaning: "such that the inclined lower portions are shaped to reduce the propagation of extended lattice defects into the active layer."

Ex. C at C-18, *Google,* p. 18.

2. The appropriate construction

The "whereby" clause should be construed as "such that the inclined lower portions are configured to reduce the propagation of extended lattice defects into the active layer" which is consistent with the *Google* claim construction order.

G. "upper planar portion with a low defect density"

Term	Lexington's Proposal	Defendant's Proposal
upper planar portion with a low defect density [Claim 2]	the upper planar portion of the first layer has a lower defect density than it otherwise would without the claimed textured district	Indefinite

1. The disputed phrase is sufficiently definite

Claim 2 recites: "The device of claim 1, wherein said first layer has an upper planar portion with low defect density."[6] This claim depends from claim 1, which (according to

[6] The Certificate of Correction states, in relevant part as to claim 2, "Col. 8, line 53, replace "or" with --of--; line 54, replace "slow" with --a low--.

Lexington's proposed construction) requires that "the inclined lower portions are configured to reduce the propagation of extended lattice defects into the active layer". Claim 2 adds the additional requirement that "the upper planar portion of the first layer has a lower defect density". In response to the potential question of "*lower* than what?", Lexington proposes the comparison to the defect density that would exist without the claimed textured district. This follows the same approach used by the *Amazon* district court that was cited approvingly by the Federal Circuit:

> The court, however, reasoned that "it is clear that the goal of the invention is to 'reduce' the number of lattice defects" and held that the claim was not indefinite for not specifying "exactly how many defects [were] reduced." The court then construed the term to mean "such that free propagation of extended lattice defects into the active layer is significantly reduced *relative to a device made by the same process without the textured districts*."

Ex. B, *Lexington*, 601 F. App'x at 966-967 (internal citations omitted, emphasis added). The Federal Circuit then went on to find no error in this portion of the district court's construction. *Id*. at 969.

The Federal Circuit has explained that relative terms and words of degree – even the term "high" – are sufficiently definite under the *Nautilus* standard:

> [R]elative terms and words of degree do not render patent claims invalid. *Interval Licensing LLC v. AOL, Inc*., 766 F.3d 1364, 1370 (Fed. Cir. 2014). To determine whether a particular term is indefinite, "[o]ne must bear in mind . . . that patents are `not addressed to lawyers, or even to the public generally,' but rather to those skilled in the relevant art." *Nautilus*, 134 S.Ct. at 2128-29 & n.5 (quoting *Carnegie Steel Co. v. Cambria Iron Co*., 185 U.S. 403, 437, 22 S.Ct. 698, 46 L.Ed. 968 (1902), and citing *Eibel Process Co. v. Minn. & Ont. Paper Co*., 261 U.S. 45, 58, 65-66, 43 S.Ct. 322, 67 L.Ed. 523 (1923)). For example, in 1923, the Supreme Court "uph[eld] as definite a patent for an improvement to a paper-making machine, which provided that a wire be placed at a `high' or `substantial elevation.'" *Nautilus*, 134 S.Ct. at 2129 n.5 (citing *Eibel Process*, 261 U.S. at 58, 43 S.Ct. 322). The Court explained that these relative terms—"substantial" and "high"—were sufficiently definite because "`readers . . . skilled in the art of paper making and versed in the use of the . . . machine' would have `no difficulty . . . in determining . . . the substantial [elevation] needed' for the machine to operate as specified." *Id*. (quoting *Eibel Process*, 261 U.S. at 65-66, 43 S.Ct. 322).

One E-Way, Inc. v. Intern. Trade Com'n, 859 F.3d 1059, 1063 (Fed. Cir. 2017).

Furthermore, no numeric limits should be imposed. The intrinsic evidence provides no numerical standard for measuring a degree relating to "low defect density". Where no specific

standard is established by the intrinsic evidence, the Federal Circuit has held that it is error to impose a more exact construction on terms of degree. *See, e.g.*, *Playtex Prods., Inc. v. Procter & Gamble Co.*, 400 F.3d 901, 907 (Fed. Cir. 2005) ("[T]he definition of 'substantially flattened surfaces' adopted by the district court introduces a numerical tolerance to the flatness of the gripping area surfaces of the claimed applicator. That reading contradicts the recent precedent of this court, interpreting such terms of degree.") (citing *Cordis Corp. v. Medtronic AVE, Inc.*, 339 F.3d 1352, 1361 (Fed. Cir. 2003); *Anchor Wall Sys., Inc. v. Rockwood Retaining Walls*, 340 F.3d 1298, 1311 (Fed. Cir. 2003)).

2. The appropriate construction

The disputed term should be construed as "the upper planar portion of the first layer has a lower defect density than it otherwise would without the claimed textured district" and is not otherwise indefinite.

H. "without sharp corners"

Term	Lexington's Proposal	Defendant's Proposal
without sharp corners [Claim 17]	plain and ordinary meaning	Indefinite

1. The phrase "without sharp corners" is not indefinite

The Federal Circuit has previously held that the term "sharp corners" (indeed, the circumstances, as here, involved the *absence* of sharp corners) was sufficiently definite:

> Stryker also argues that the district court's exclusion of "sharp corners or sharp angles" renders the construction insufficiently definite, since the court did not specify precisely how "sharp" is too sharp. However, a sound claim construction need not always purge every shred of ambiguity. The resolution of some line-drawing problems — especially easy ones like this one — is properly left to the trier of fact. *See PPG Indus. v. Guardian Indus. Corp*., 156 F.3d 1351, 1355 (Fed. Cir. 1998) ("[A]fter the court has defined the claim with whatever specificity and precision is warranted by the language of the claim and the evidence bearing on the proper construction, the task of determining whether the construed claim reads on the accused product is for the finder of fact."); *Modine Mfg. Co. v. U.S. Int'l Trade Comm'n*, 75 F.3d 1545, 1554 (Fed.Cir.1996) (whether claim limitation requiring diameter of "about 0.040 inch" embodied held a matter of "technologic fact"); *see also Abbott Labs. v. Baxter Pharm. Prods., Inc*., 471 F.3d 1363, 1368 (Fed. Cir. 2006) (where result is the same under any reasonable construction, "we need not construe [the disputed] phrase with numerical exactitude.").

Acumed LLC v. Stryker Corp., 483 F.3d 800, 816 (2007).

2. The appropriate construction

The disputed term need not be construed or modified because it is a non-technical term that has a plain and ordinary meaning that would not be confusing to a jury, and is not otherwise indefinite.

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Respectfully submitted,

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